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Ms. Leslie Blake  
Remedial Project Manager  
Superfund Division  
U.S. EPA, Region 5  
77 West Jackson Boulevard (SR-6J)  
Chicago, Illinois 60604

November 30, 2017

Subject: Estimated Costs for Vapor Intrusion Mitigation at Sixty-Nine Locations at the Keystone Corridor Groundwater Contamination Site, Marion, County, Indiana

Dear Ms. Blake,

Per the U.S. Environmental Protection Agency's (U.S. EPA's) request, please find attached a Class 4 cost estimate for the mitigation of vapor intrusion at an additional 69 specific existing structures identified during remedial investigation (RI) activities completed in 2016 and 2017 at the Keystone Corridor Groundwater Contamination Site (Site). This cost estimate is provided in addition to the one submitted on July 31, 2017, for eight locations. The expected accuracy range of the estimate is -30% to +50%. The mitigation costs include sealing of building slabs, diagnostic testing, and the installation of vapor intrusion mitigation system (VIMS). Also included are costs for work planning, permitting, and 5 years of VIMS operation and maintenance with associated reporting. For comparison, as requested, an alternative is also presented for 5 years of monitoring at 20 structures without active mitigation.

This costing effort was completed prior to and outside of the sitewide feasibility study (FS) currently underway as part of the RI/FS process for Work Assignment 215, which will evaluate all media, pathways, and receptors. It is assumed that this costing information will be included in the FS yet to be written.

For any questions regarding this material, please do not hesitate to contact me at 513-587-7013 or via email at [brett.fishwild@ch2m.com](mailto:brett.fishwild@ch2m.com).

Regards,  
CH2M HILL, Inc.

A handwritten signature in black ink, appearing to read 'Brett A. Fishwild'.

Brett A. Fishwild  
Site Manager

## Summary of Cost Analysis

Keystone Corridor - Interim ROD VIMS Estimates

Alternatives		Alternative 1 No Action			Alternative 2 Indoor Air and/or Subslab Monitoring at 88 Structures with VIMS			Alternative 3 Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning		
Alternative Evaluation Timeframe <sup>1</sup>		5 years			5 years			5 years		
		-30%	Estimate	+50%	-30%	Estimate	+50%	-30%	Estimate	+50%
Total Implementation Costs		\$0	\$0	\$0	\$44,000	\$62,500	\$94,000	\$3,431,000	\$4,901,442	\$7,352,000
Present Value of Future Costs	Discount Rate of 0.4% (OMB, 2014)	\$0	\$0	\$0	\$1,652,000	\$2,360,550	\$3,541,000	\$1,206,000	\$1,723,452	\$2,585,000
<b>Grand Total Present Value</b>	<b>Discount Rate of 0.4% (OMB, 2014)</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,696,000</b>	<b>\$2,423,050</b>	<b>\$3,635,000</b>	<b>\$4,637,000</b>	<b>\$6,625,000</b>	<b>\$9,937,000</b>

### Notes and References:

<sup>1</sup> The 5-year timeframe evaluated is for VIMS installation through the first Five Year Review. VIMS operation, maintenance, and monitoring will need to continue until the VI pathway is no longer capable of being completed.

- The "Real" Discount Rate used to calculate the Present Value cost is 0.4% for a timeframe of 5-years per the Office of Management and Budget (OMB), Circular A-94, Appendix C, Revised December 2014, "Discount Rates for Cost Effectiveness, Lease Purchase, and Related Analysis"

*The Real Discount Rates are a forecast of real interest rates from which the inflation premium has been removed and based on the economic assumptions from the December 2014 Budget Baseline. These real rates are to be used for discounting constant-dollar flows, as is often required in cost-effectiveness analysis.*

- USEPA. 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*. OSWER Directive 9355.3-01. EPA/540/G-89/004. October.
- USEPA. 2000. *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*. With the U.S. Army Corps of Engineers. OSWER 9355.0-75. EPA 540-R-00-002. July.

This is not an offer for construction and/or project execution.

These AACE Classification Class 4 cost estimates are assumed to represent the actual total installed cost within the range of -30 percent to +50 percent (% based on AACE) of the cost indicated. It would appear prudent that internal budget allowances account for the highest cost indicated by this range as well as other site specific allowances. The cost estimate has been prepared for guidance in project evaluation and implementation from the information available at the time of the estimate. The final costs of the project will depend on actual labor and material costs, competitive market conditions, implementation schedule, and other variable factors. As a result, the final project costs will vary from the estimates presented herein. Because of this, project feasibility and funding needs must be carefully reviewed prior to making specific financial decisions to help ensure proper project evaluation and adequate funding.

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
IMPLEMENTATION COST					
No Action					
No Action			\$0	\$0	
Subtotal				\$0	
Contingency	25%			\$0	
Project Management	10%			\$0	
General Conditions and Administration (G&A)	7%			\$0	
Overhead & Profit	8%			\$0	
Total Implementation Cost				\$0	
FUTURE COSTS (5 years)					
No Action					
No Action			\$0	\$0	
Laboratory and DV Report					
Subtotal			\$0	\$0	
Contingency	25%		\$0	\$0	
Project Management	10%		\$0	\$0	
G&A	7%		\$0	\$0	
Overhead & Profit	8%		\$0	\$0	
Subtotal			\$0	\$0	
Semi-Annual Monitoring			\$0		
Semi-Annual Total Future Cost				\$0	
Present Value <sub>(0.4%)</sub> of Future Cost Semi-Annual Monitoring	5	year	0.4%	\$0	
Total Present Value <sub>(0.4%)</sub> of All Future Costs			0.4%	\$0	Y2017 PV calculated for 5-yrs-future-cost using 0.4% Real Discount Rate per Office of Management and Budget (2014) guidance.

Other Notes and References:

- The 5-year timeframe evaluated assumes costs through the first 5-Year Review.
- The "Real" Discount Rate used to calculate the Present Value cost is 0.4% for a timeframe of 5-years per the Office of Management and Budget (OMB), Circular A-94, Appendix C, Revised December 2014, "Discount Rates for Cost Effectiveness, Lease Purchase, and Related Analysis"
  - USEPA. 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* . OSWER Directive 9355.3-01. EPA/540/G-89/004. October.
  - USEPA. 2000. *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* . With the U.S. Army Corps of Engineers. OSWER 9355.0-75. EPA 540-R-00-002. July.

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Alternative 2: Indoor Air and/or Subslab Monitoring at 69 Locations / 88 Structures with VIMS

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
IMPLEMENTATION COST					
Work Plan for Indoor Air Monitoring at 88 Structures with VIMS					
Work Plan for Sampling	1	each	\$50,000	\$50,000	Pre-Draft, Draft, Draft Final, & Final. Includes Scoping sessions.
Subtotal				\$50,000	
Project Management	10%			\$5,000	
General Conditions and Administration (G&A)	7%			\$3,500	
Overhead & Profit	8%			\$4,000	
Total Implementation Cost				\$62,500	
FUTURE COSTS (5 years)					
Semi Annual Monitoring at 88 Structures with VIMS - Year 1 and 2					
VaporPin Installation	155	each	\$300	\$46,500	
Sampling Labor	4	each	\$73,710	\$294,840	Assume 2 people for 273 hours (3 hours per structure, 88 total, plus 9 hour buffer) @ \$135/hr:
Laboratory and DV	4	each	\$116,172	\$464,688	BOA Rates
Report	4	each	\$30,000	\$120,000	Tech Memo Summary of Results
Subtotal			\$219,882	\$879,528	
Contingency	25%		\$54,970	\$219,882	
Project Management	10%		\$21,988	\$87,953	
G&A	7%		\$15,392	\$61,567	
Overhead & Profit	8%		\$17,591	\$70,362	
Subtotal			\$329,823	\$1,319,292	
Semi-Annual Monitoring Year 1 and 2			\$659,646		
Semi-Annual Total Future Cost				\$1,319,292	
Present Value <sup>(0.4%)</sup> of Future Cost Semi-Annual Monitoring	2	year	0.4%	\$1,311,418	Year 1 and 2
Annual Monitoring at 88 Structures with VIMS - Years 3-5					
Labor	3	each	\$90,720	\$272,160	Assume 2 people for 336 hours (3 hours per structure, 109 total, plus 9 hour buffer) @ \$135/hr:
Laboratory and DV	3	each	\$116,172	\$348,516	BOA Rates
Report	3	each	\$30,000	\$90,000	Tech Memo Summary of Results
Subtotal			\$236,892	\$710,676	
Contingency	25%		\$59,223	\$177,669	
Project Management	10%		\$23,689	\$71,068	
G&A	7%		\$16,582	\$49,747	
Overhead & Profit	8%		\$18,951	\$56,854	
Subtotal			\$355,338	\$1,066,014	
Monitoring Years 3-5			\$355,338		
Total Future Cost				\$1,066,014	
Present Value <sup>(0.4%)</sup> of Future Cost Monitoring (Years 3-5)	3	year	0.4%	\$1,049,132	Years 3-5
Total Present Value <sup>(0.4%)</sup> of All Future Costs			0.4%	\$2,360,550	Y2017 PV calculated for 5-yr-future-cost using 0.4% Real Discount Rate per Office of Management and Budget (2014) guidance.

Other Notes and References:

The 5-year timeframe evaluated assumes monitoring through the 5 year review.

- The "Real" Discount Rate used to calculate the Present Value cost is 0.4% for a timeframe of 5-years per the Office of Management and Budget (OMB), Circular A-94, Appendix C, Revised December 2014, "Discount Rates for Cost Effectiveness, Lease Purchase, and Related Analysis"
- USEPA. 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* . OSWER Directive 9355.3-01. EPA/540/G-89/004. October.
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**Alternative 2: Indoor Air and/or Subslab Monitoring at 69 Locations / 88 Structures with VIMS**  
 Lab Backup

Keystone Corridor - Interim ROD VIMS Estimates

Analysis/Test	Sample Matrix	Field Samples	Field Duplicates	Total Number of Air Samples	Total Billable Liquid Samples	Unit Price	Subtotal Cost	Total Analytical Cost
<b>Monitoring</b>								
<b>Assume 7 Events over Five Years</b>								
<b>Air and Soil Gas Sampling</b>								
Volatiles in Air INCLUDING 4 OUTDOOR AIR SAMPLES	Air	159	16	175	175	\$199.61	\$34,931.75	\$34,931.75
Media Preparation - 6L SUMMA Canister with Batch Certification	NA	159	16	175	175	\$33.42	\$5,848.50	\$5,848.50
Flow Controller/Regulator for SUMMA Canister	NA	159	16	175	175	\$25.89	\$4,530.75	\$4,530.75
T- Connection for SUMMA Canister	NA	0	16	16	16	\$14.06	\$224.96	\$224.96
Weekly Rental for 6L SUMMA Canister	NA	159	16	175	175	\$44.55	\$7,796.25	\$7,796.25
Volatiles in Soil Gas	Soil Gas	155	16	171	171	\$199.61	\$34,133.31	\$34,133.31
Media Preparation - 1L SUMMA Canister with Batch Certification	NA	155	16	171	171	\$41.88	\$7,161.48	\$7,161.48
Flow Controller/Regulator for SUMMA Canister	NA	155	16	171	171	\$25.89	\$4,427.19	\$4,427.19
T- Connection for SUMMA Canister	NA	0	16	16	16	\$14.06	\$224.96	\$224.96
Weekly Rental for 1L SUMMA Canister	NA	155	16	171	171	\$51.36	\$8,782.56	\$8,782.56
<b>Subtotal</b>								<b>\$108,061.71</b>
<b>TOTAL LAB COST PER EVENT</b>								<b>\$108,061.71</b>

Alternative 2: Indoor Air and/or Subslab Monitoring at 69 Locations / 88 Structures with VIMS  
Data Validation Backup

Keystone Corridor - Interim ROD VIMS Estimates

Analysis/Test	Sample Matrix	Field Samples	Field Duplicates	Total Number of Air and Soil Gas Samples	Total Billable Air Samples	Air and Soil Gas Unit Price	Air and Soil Gas Subtotal Cost	Total DV Cost
LTM Assume Seven Events over Five Years								
Air and Soil Gas Samples								
TCL VOCs	Air	314	32	346	346	\$23.44	\$8,110.24	\$8,110.24
Subtotal								\$8,110.24
TOTAL FUTURE DV COST Per Event								\$8,110.24

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Mitigation Work Plan, Data Evaluation, and VIMS layout</b>					
Work Plans	1	Each	\$75,000	\$75,000	Mitigation work plan, data evaluation, and VIMS layout. Includes scoping sessions.
<b>Access Coordination</b>	1		\$15,000	\$15,000	
<b>Air Permitting Equivalency</b>					
Air Permit Requirements Evaluation	1	LS	\$10,000	\$10,000	Using offgas data from diagnostic testing
<b>VIMS Sealing, Diagnostic Testing, and Installation by Building</b>					
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew - \$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew - \$135/hr: 1.5 days, 10-hr day
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew - \$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	60	Hours	\$65	\$3,900	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 3-days, 10-hr day
Vehicle for Field Team	3	Days	\$50	\$150	Assume \$50/day for rental car for field team
PID Rental	3	Days	\$100	\$300	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	6	Days	\$135	\$810	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew - \$135/hr: 3-days, 10-hr day
Travel and Per Diem for Oversight	3	Days	\$135	\$405	
Vehicle for Oversight	3	Days	\$50	\$150	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	40	Hours	\$65	\$2,600	2 people, 2 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	2	Days	\$50	\$100	Assume \$50/day for rental car for field team
PID Rental	2	Days	\$100	\$200	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	20	Hours	\$135	\$2,700	Labor Rate for 1 person crew - \$135/hr: 2 days, 10-hr day
Travel and Per Diem for Oversight	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person, 2 days
Vehicle for Oversight	2	Days	\$50	\$100	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 2 days
<b>VIMS Installation</b>					
Labor - Oversight	40	Hours	\$135	\$5,400	Labor Rate for 1 person crew - \$135/hr: 4 days, 10-hr day
Labor - 3-person Crew	120	Hours	\$65	\$7,800	Average Labor Rate for 3 person crew at \$65/hr per person, 4 days, 10 hr day
Vehicle for Field Team	4	Days	\$50	\$200	Assume \$50/day for rental car for field team
PID Rental	4	Days	\$100	\$400	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	4	Each	\$3,500	\$14,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	8	Hours	\$150	\$1,200	For installation of mitigation fan
Piping Installation [4" diameter piping]	200	LF	\$50	\$10,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 4 days
Vehicle for Oversight	4	Days	\$50	\$200	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	12	Days	\$135	\$1,620	Lodging and Per diem of \$135/day/person, 4 days



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	60	Hours	\$65	\$3,900	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 3-days, 10-hr day
Vehicle for Field Team	3	Days	\$50	\$150	Assume \$50/day for rental car for field team
PID Rental	3	Days	\$100	\$300	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	6	Days	\$135	\$810	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 3-days, 10-hr day
Travel and Per Diem for Oversight	3	Days	\$135	\$405	
Vehicle for Oversight	3	Days	\$50	\$150	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	40	Hours	\$65	\$2,600	2 people, 2 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	2	Days	\$50	\$100	Assume \$50/day for rental car for field team
PID Rental	2	Days	\$100	\$200	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	20	Hours	\$135	\$2,700	Labor Rate for 1 person crew -\$135/hr: 2 days, 10-hr day
Travel and Per Diem for Oversight	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person, 2 days
Vehicle for Oversight	2	Days	\$50	\$100	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 2 days
<b>VIMS Installation</b>					
Labor - Oversight	40	Hours	\$135	\$5,400	Labor Rate for 1 person crew -\$135/hr: 4 days, 10-hr day
Labor - 3-person Crew	120	Hours	\$65	\$7,800	Average Labor Rate for 3 person crew at \$65/hr per person, 4 days, 10 hr day
Vehicle for Field Team	4	Days	\$50	\$200	Assume \$50/day for rental car for field team
PID Rental	4	Days	\$100	\$400	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	4	Each	\$3,500	\$14,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	8	Hours	\$150	\$1,200	For installation of mitigation fan
Piping Installation [4" diameter piping]	200	LF	\$50	\$10,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 4 days
Vehicle for Oversight	4	Days	\$50	\$200	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	12	Days	\$135	\$1,620	Lodging and Per diem of \$135/day/person, 4 days
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	60	Hours	\$65	\$3,900	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 3-days, 10-hr day
Vehicle for Field Team	3	Days	\$50	\$150	Assume \$50/day for rental car for field team
PID Rental	3	Days	\$100	\$300	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	6	Days	\$135	\$810	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 3-days, 10-hr day
Travel and Per Diem for Oversight	3	Days	\$135	\$405	
Vehicle for Oversight	3	Days	\$50	\$150	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	40	Hours	\$65	\$2,600	2 people, 2 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	2	Days	\$50	\$100	Assume \$50/day for rental car for field team
PID Rental	2	Days	\$100	\$200	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	20	Hours	\$135	\$2,700	Labor Rate for 1 person crew -\$135/hr: 2 days, 10-hr day
Travel and Per Diem for Oversight	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person, 2 days
Vehicle for Oversight	2	Days	\$50	\$100	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 2 days
<b>VIMS Installation</b>					
Labor - Oversight	40	Hours	\$135	\$5,400	Labor Rate for 1 person crew -\$135/hr: 4 days, 10-hr day
Labor - 3-person Crew	120	Hours	\$65	\$7,800	Average Labor Rate for 3 person crew at \$65/hr per person, 4 days, 10 hr day
Vehicle for Field Team	4	Days	\$50	\$200	Assume \$50/day for rental car for field team
PID Rental	4	Days	\$100	\$400	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	4	Each	\$3,500	\$14,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	8	Hours	\$150	\$1,200	For installation of mitigation fan
Piping Installation [4" diameter piping]	200	LF	\$50	\$10,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 4 days
Vehicle for Oversight	4	Days	\$50	\$200	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	12	Days	\$135	\$1,620	Lodging and Per diem of \$135/day/person, 4 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	60	Hours	\$65	\$3,900	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 3-days, 10-hr day
Vehicle for Field Team	3	Days	\$50	\$150	Assume \$50/day for rental car for field team
PID Rental	3	Days	\$100	\$300	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	6	Days	\$135	\$810	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 3-days, 10-hr day
Travel and Per Diem for Oversight	3	Days	\$135	\$405	
Vehicle for Oversight	3	Days	\$50	\$150	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	40	Hours	\$65	\$2,600	2 people, 2 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	2	Days	\$50	\$100	Assume \$50/day for rental car for field team
PID Rental	2	Days	\$100	\$200	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	20	Hours	\$135	\$2,700	Labor Rate for 1 person crew -\$135/hr: 2 days, 10-hr day
Travel and Per Diem for Oversight	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person, 2 days
Vehicle for Oversight	2	Days	\$50	\$100	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 2 days
<b>VIMS Installation</b>					
Labor - Oversight	40	Hours	\$135	\$5,400	Labor Rate for 1 person crew -\$135/hr: 4 days, 10-hr day
Labor - 3-person Crew	120	Hours	\$65	\$7,800	Average Labor Rate for 3 person crew at \$65/hr per person, 4 days, 10 hr day
Vehicle for Field Team	4	Days	\$50	\$200	Assume \$50/day for rental car for field team
PID Rental	4	Days	\$100	\$400	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	4	Each	\$3,500	\$14,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	8	Hours	\$150	\$1,200	For installation of mitigation fan
Piping Installation [4" diameter piping]	200	LF	\$50	\$10,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 4 days
Vehicle for Oversight	4	Days	\$50	\$200	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	12	Days	\$135	\$1,620	Lodging and Per diem of \$135/day/person, 4 days
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	60	Hours	\$65	\$3,900	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 3-days, 10-hr day
Vehicle for Field Team	3	Days	\$50	\$150	Assume \$50/day for rental car for field team
PID Rental	3	Days	\$100	\$300	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	6	Days	\$135	\$810	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 3-days, 10-hr day
Travel and Per Diem for Oversight	3	Days	\$135	\$405	
Vehicle for Oversight	3	Days	\$50	\$150	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	40	Hours	\$65	\$2,600	2 people, 2 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	2	Days	\$50	\$100	Assume \$50/day for rental car for field team
PID Rental	2	Days	\$100	\$200	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	20	Hours	\$135	\$2,700	Labor Rate for 1 person crew -\$135/hr: 2 days, 10-hr day
Travel and Per Diem for Oversight	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person, 2 days
Vehicle for Oversight	2	Days	\$50	\$100	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 2 days
<b>VIMS Installation</b>					
Labor - Oversight	40	Hours	\$135	\$5,400	Labor Rate for 1 person crew -\$135/hr: 4 days, 10-hr day
Labor - 3-person Crew	120	Hours	\$65	\$7,800	Average Labor Rate for 3 person crew at \$65/hr per person, 4 days, 10 hr day
Vehicle for Field Team	4	Days	\$50	\$200	Assume \$50/day for rental car for field team
PID Rental	4	Days	\$100	\$400	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	4	Each	\$3,500	\$14,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	8	Hours	\$150	\$1,200	For installation of mitigation fan
Piping Installation [4" diameter piping]	200	LF	\$50	\$10,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 4 days
Vehicle for Oversight	4	Days	\$50	\$200	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	12	Days	\$135	\$1,620	Lodging and Per diem of \$135/day/person, 4 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	60	Hours	\$65	\$3,900	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 3-days, 10-hr day
Vehicle for Field Team	3	Days	\$50	\$150	Assume \$50/day for rental car for field team
PID Rental	3	Days	\$100	\$300	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	6	Days	\$135	\$810	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 3-days, 10-hr day
Travel and Per Diem for Oversight	3	Days	\$135	\$405	
Vehicle for Oversight	3	Days	\$50	\$150	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	40	Hours	\$65	\$2,600	2 people, 2 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	2	Days	\$50	\$100	Assume \$50/day for rental car for field team
PID Rental	2	Days	\$100	\$200	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	20	Hours	\$135	\$2,700	Labor Rate for 1 person crew -\$135/hr: 2 days, 10-hr day
Travel and Per Diem for Oversight	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person, 2 days
Vehicle for Oversight	2	Days	\$50	\$100	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 2 days
<b>VIMS Installation</b>					
Labor - Oversight	40	Hours	\$135	\$5,400	Labor Rate for 1 person crew -\$135/hr: 4 days, 10-hr day
Labor - 3-person Crew	120	Hours	\$65	\$7,800	Average Labor Rate for 3 person crew at \$65/hr per person, 4 days, 10 hr day
Vehicle for Field Team	4	Days	\$50	\$200	Assume \$50/day for rental car for field team
PID Rental	4	Days	\$100	\$400	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	4	Each	\$3,500	\$14,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	8	Hours	\$150	\$1,200	For installation of mitigation fan
Piping Installation [4" diameter piping]	200	LF	\$50	\$10,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 4 days
Vehicle for Oversight	4	Days	\$50	\$200	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	12	Days	\$135	\$1,620	Lodging and Per diem of \$135/day/person, 4 days
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	60	Hours	\$65	\$3,900	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 3-days, 10-hr day
Vehicle for Field Team	3	Days	\$50	\$150	Assume \$50/day for rental car for field team
PID Rental	3	Days	\$100	\$300	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	6	Days	\$135	\$810	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 3-days, 10-hr day
Travel and Per Diem for Oversight	3	Days	\$135	\$405	
Vehicle for Oversight	3	Days	\$50	\$150	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	40	Hours	\$65	\$2,600	2 people, 2 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	2	Days	\$50	\$100	Assume \$50/day for rental car for field team
PID Rental	2	Days	\$100	\$200	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	20	Hours	\$135	\$2,700	Labor Rate for 1 person crew -\$135/hr: 2 days, 10-hr day
Travel and Per Diem for Oversight	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person, 2 days
Vehicle for Oversight	2	Days	\$50	\$100	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 2 days
<b>VIMS Installation</b>					
Labor - Oversight	40	Hours	\$135	\$5,400	Labor Rate for 1 person crew -\$135/hr: 4 days, 10-hr day
Labor - 3-person Crew	120	Hours	\$65	\$7,800	Average Labor Rate for 3 person crew at \$65/hr per person, 4 days, 10 hr day
Vehicle for Field Team	4	Days	\$50	\$200	Assume \$50/day for rental car for field team
PID Rental	4	Days	\$100	\$400	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	4	Each	\$3,500	\$14,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	8	Hours	\$150	\$1,200	For installation of mitigation fan
Piping Installation [4" diameter piping]	200	LF	\$50	\$10,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 4 days
Vehicle for Oversight	4	Days	\$50	\$200	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	12	Days	\$135	\$1,620	Lodging and Per diem of \$135/day/person, 4 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	60	Hours	\$65	\$3,900	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 3-days, 10-hr day
Vehicle for Field Team	3	Days	\$50	\$150	Assume \$50/day for rental car for field team
PID Rental	3	Days	\$100	\$300	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	6	Days	\$135	\$810	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 3-days, 10-hr day
Travel and Per Diem for Oversight	3	Days	\$135	\$405	
Vehicle for Oversight	3	Days	\$50	\$150	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	40	Hours	\$65	\$2,600	2 people, 2 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	2	Days	\$50	\$100	Assume \$50/day for rental car for field team
PID Rental	2	Days	\$100	\$200	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	20	Hours	\$135	\$2,700	Labor Rate for 1 person crew -\$135/hr: 2 days, 10-hr day
Travel and Per Diem for Oversight	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person, 2 days
Vehicle for Oversight	2	Days	\$50	\$100	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 2 days
<b>VIMS Installation</b>					
Labor - Oversight	40	Hours	\$135	\$5,400	Labor Rate for 1 person crew -\$135/hr: 4 days, 10-hr day
Labor - 3-person Crew	120	Hours	\$65	\$7,800	Average Labor Rate for 3 person crew at \$65/hr per person, 4 days, 10 hr day
Vehicle for Field Team	4	Days	\$50	\$200	Assume \$50/day for rental car for field team
PID Rental	4	Days	\$100	\$400	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	4	Each	\$3,500	\$14,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	8	Hours	\$150	\$1,200	For installation of mitigation fan
Piping Installation [4" diameter piping]	200	LF	\$50	\$10,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 4 days
Vehicle for Oversight	4	Days	\$50	\$200	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	12	Days	\$135	\$1,620	Lodging and Per diem of \$135/day/person, 4 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew - \$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew - \$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew - \$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew - \$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew - \$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew - \$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	3	Each	\$3,500	\$10,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	150	LF	\$50	\$7,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	3	Each	\$3,500	\$10,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	150	LF	\$50	\$7,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	3	Each	\$3,500	\$10,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	150	LF	\$50	\$7,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	3	Each	\$3,500	\$10,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	150	LF	\$50	\$7,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	3	Each	\$3,500	\$10,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	150	LF	\$50	\$7,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	3	Each	\$3,500	\$10,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	150	LF	\$50	\$7,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	3	Each	\$3,500	\$10,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	150	LF	\$50	\$7,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	3	Each	\$3,500	\$10,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	150	LF	\$50	\$7,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	60	Hours	\$65	\$3,900	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 3-days, 10-hr day
Vehicle for Field Team	3	Days	\$50	\$150	Assume \$50/day for rental car for field team
PID Rental	3	Days	\$100	\$300	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	6	Days	\$135	\$810	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 3-days, 10-hr day
Travel and Per Diem for Oversight	3	Days	\$135	\$405	
Vehicle for Oversight	3	Days	\$50	\$150	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	40	Hours	\$65	\$2,600	2 people, 2 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	2	Days	\$50	\$100	Assume \$50/day for rental car for field team
PID Rental	2	Days	\$100	\$200	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	20	Hours	\$135	\$2,700	Labor Rate for 1 person crew -\$135/hr: 2 days, 10-hr day
Travel and Per Diem for Oversight	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person, 2 days
Vehicle for Oversight	2	Days	\$50	\$100	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 2 days
<b>VIMS Installation</b>					
Labor - Oversight	40	Hours	\$135	\$5,400	Labor Rate for 1 person crew -\$135/hr: 4 days, 10-hr day
Labor - 3-person Crew	120	Hours	\$65	\$7,800	Average Labor Rate for 3 person crew at \$65/hr per person, 4 days, 10 hr day
Vehicle for Field Team	4	Days	\$50	\$200	Assume \$50/day for rental car for field team
PID Rental	4	Days	\$100	\$400	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	8	Each	\$3,500	\$28,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	8	Hours	\$150	\$1,200	For installation of mitigation fan
Piping Installation [4" diameter piping]	400	LF	\$50	\$20,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	4	Days	\$135	\$540	Lodging and Per diem of \$135/day/person, 4 days
Vehicle for Oversight	4	Days	\$50	\$200	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	12	Days	\$135	\$1,620	Lodging and Per diem of \$135/day/person, 4 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
Equipment and Subcontractor					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	2	Each	\$3,500	\$7,000	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	100	LF	\$50	\$5,000	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 day, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day



**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	20	Hours	\$65	\$1,300	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 1-day, 10-hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	2	Days	\$135	\$270	Lodging and Per diem of \$135/day/person
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Travel and Per Diem for Oversight	1	Days	\$135	\$135	
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	30	Hours	\$65	\$1,950	2 people, 1.5 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	1.5	Days	\$50	\$75	Assume \$50/day for rental car for field team
PID Rental	1.5	Days	\$100	\$150	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	15	Hours	\$135	\$2,025	Labor Rate for 1 person crew -\$135/hr: 1.5 days, 10-hr day
Travel and Per Diem for Oversight	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 1.5 days
Vehicle for Oversight	1.5	Days	\$50	\$75	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1.5 days
<b>VIMS Installation</b>					
Labor - Oversight	22.5	Hours	\$135	\$3,038	Labor Rate for 1 person crew -\$135/hr: 2.25 days, 10-hr day
Labor - 3-person Crew	67.5	Hours	\$65	\$4,388	Average Labor Rate for 3 person crew at \$65/hr per person, 2.25 days, 10-hr day
Vehicle for Field Team	2.25	Days	\$50	\$113	Assume \$50/day for rental car for field team
PID Rental	2.25	Days	\$100	\$225	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	5	Hours	\$150	\$750	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	2.25	Days	\$135	\$304	Lodging and Per diem of \$135/day/person, 2.25 days
Vehicle for Oversight	2.25	Days	\$50	\$113	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	6.75	Days	\$135	\$911	Lodging and Per diem of \$135/day/person, 2.25 days

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

**Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning**

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day
<b>Sealing</b>					
<i>Equipment and Subcontractor</i>					
Mobilization and Site Setup	1	LS	\$1,500	\$1,500	Mobilizations will be combined where practical
Labor - 2-person Crew	10	Hours	\$65	\$650	Sealing, wall reconstructions, sealing utility penetrations; Average Labor Rate for 2 person crew at \$65/hr per person; 0.5-day, 10-hr day
Vehicle for Field Team	0.5	Days	\$50	\$25	Assume \$50/day for rental car for field team
PID Rental	0.5	Days	\$100	\$50	
Elastomeric Polymer	20	Tube	\$8	\$160	
Misc Materials	1	LS	\$200	\$200	
Travel and Per Diem for Subcontractor	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person
Labor - Oversight	5	Hours	\$135	\$675	Labor Rate for 1 person crew -\$135/hr: 0.5 day, 10-hr day
Travel and Per Diem for Oversight	0.5	Days	\$135	\$68	
Vehicle for Oversight	0.5	Days	\$50	\$25	Assume \$50/day for rental car
<b>Diagnostic Testing</b>					
Labor - 2-person Crew	15	Hours	\$65	\$975	2 people, 0.75 days, 10-hr day; Average labor rate \$65/hr per person
Vehicle for Field Team	0.75	Days	\$50	\$38	Assume \$50/day for rental car for field team
PID Rental	0.75	Days	\$100	\$75	
Miscellaneous Supplies	1	LS	\$400	\$400	
Exhaust Sampling	1	Each	\$350	\$350	Exhaust sampling and analysis, including shipping
Labor - Oversight	7.5	Hours	\$135	\$1,013	Labor Rate for 1 person crew -\$135/hr: 0.75 days, 10-hr day
Travel and Per Diem for Oversight	0.75	Days	\$135	\$101	Lodging and Per diem of \$135/day/person, 0.75 days
Vehicle for Oversight	0.75	Days	\$50	\$38	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	1.5	Days	\$135	\$203	Lodging and Per diem of \$135/day/person, 0.75 days
<b>VIMS Installation</b>					
Labor - Oversight	10	Hours	\$135	\$1,350	Labor Rate for 1 person crew -\$135/hr: 1 day, 10-hr day
Labor - 3-person Crew	30	Hours	\$65	\$1,950	Average Labor Rate for 3 person crew at \$65/hr per person, 1 days, 10 hr day
Vehicle for Field Team	1	Days	\$50	\$50	Assume \$50/day for rental car for field team
PID Rental	1	Days	\$100	\$100	
Miscellaneous Materials	1	LS	\$500	\$500	
Node Installation	1	Each	\$3,500	\$3,500	
Mitigation Fan	1	Each	\$750	\$750	
Electrician	3	Hours	\$150	\$450	For installation of mitigation fan
Piping Installation [4" diameter piping]	50	LF	\$50	\$2,500	Assume 50 ft of piping for each node
Travel and Per Diem for Oversight	1	Days	\$135	\$135	Lodging and Per diem of \$135/day/person, 1 day
Vehicle for Oversight	1	Days	\$50	\$50	Assume \$50/day for rental car
Travel and Per Diem for Subcontractor	3	Days	\$135	\$405	Lodging and Per diem of \$135/day/person, 1 day

### Alternative 3: Identification and Sealing of Vapor Entry Points, Diagnostic Testing, VIMS Installation/Startup/Commissioning

Keystone Corridor - Interim ROD VIMS Estimates

Item/Activity	Qty	Unit	Unit Cost	Cost	Notes & Comments
<b>IMPLEMENTATION COST</b>					
<b>VIMS Startup and Commissioning</b>					
Labor Oversight - VIMS Startup and Commissioning	500	Hours	\$135	\$67,500	1/2 day per structure; 50-days, 10-hr days, for startup assessment; assumes 6.5 days of buffer
Oversight - Travel and Per Diem - VIMS Startup and	50	Days	\$135	\$6,750	
Vehicle for Oversight	50	Days	\$50	\$2,500	Assume \$50/day for rental car
Labor - 2-person crew	1000	Hours	\$65	\$65,000	1/2 day per structure; 50-days, 10-hr days, for startup assessment; assumes 6.5 days of buffer
Travel and Per Diem - VIMS Startup and Commissioning (field of	100	Days	\$135	\$13,500	2-person crew for 50 days, 10-hr days
Vehicle for Field Team	50	Days	\$50	\$2,500	Assume \$50/day for rental car for field team
PID Rental	50	Days	\$100	\$5,000	
Mobilization and Site Setup - VIMS Startup and Commissioning	1	LS	\$10,000	\$10,000	
VaporPin Installation	155	Each	\$300	\$46,500	
Laboratory Analyses - 1 event	1	LS	\$108,062	\$108,062	From Tab Alt_2_Lab
Data Validation - 1 event	1	LS	\$8,110	\$8,110	From Tab Alt_2_DV
Labor - Construction Manager - VIMS Startup and Commissioning	500	Hours	\$135	\$67,500	Construction manager for 15 days, 10-hr days
Construction Manager - Travel and Per Diem - VIMS Startup and	50	Days	\$135	\$6,750	Construction manager for 15 days
Vehicle for Construction Manager	50	Days	\$50	\$2,500	Assume \$50/day for rental car
<b>Construction Report</b>	1	each	\$100,000	\$100,000	Draft and Final Construction Completion Report, includes Data Validation and Evaluation
<i>Subtotal (VIMS Sealing, Diagnostic Testing, and Installation by Building)</i>				\$3,267,628	
<i>Contingency</i>	25%			\$816,907	
<i>Project Management</i>	10%			\$326,763	
<i>G&amp;A</i>	7%			\$228,734	
<i>Overhead &amp; Profit</i>	8%			\$261,410	
<b>Total Implementation Cost</b>				<b>\$4,901,442</b>	
<b>Annual</b>					
Labor	5	Each	\$73,710	\$368,550	Assume 2 people for 273 hours (3 hours per structure, 88 total, plus 9 hour buffer) @ \$135/hr;
Vehicle for Field Team	5	Each	\$1,350	\$6,750	Assume \$50/day for rental car for field team, 27 days
PID Rental	5	Each	\$2,700	\$13,500	Assume \$100/day for equipment rental, 27 days
Other Field Equipment	5	Each	\$2,700	\$13,500	Assume \$100/day for equipment rental, 27 days. Rental of field equipment for measurement of physical parameters, including micro-manometer and anemometer
Laboratory and DV	0	each	\$116,172	\$0	Key Assumption - Will rely on physical operation parameters
Report	5	each	\$35,000	\$175,000	Tech Memo Summary of Results
<i>Subtotal</i>			\$231,632	\$577,300	
<i>Contingency</i>	25%		\$57,908	\$144,325	
<i>Project Management</i>	10%		\$23,163	\$57,730	
<i>G&amp;A</i>	7%		\$16,214	\$40,411	
<i>Overhead &amp; Profit</i>	8%		\$18,531	\$46,184	
<i>Subtotal</i>			\$347,448	\$865,950	
Monitoring Years 1-5			\$347,448		
Monitoring Total Future Cost				\$865,950	
<i>Present Value<sub>(0.4%)</sub> of Future Cost Monitoring</i>	5	year	0.4%	\$1,723,452	First Year of Monitoring not Discounted
<b>Total Present Value<sub>(0.4%)</sub> of All Future Costs</b>			<b>0.4%</b>	<b>\$1,723,452</b>	Y2017 PV calculated for 5 yrs future cost using 0.4 Real Discount Rate per Office of Management and Budget (2014) guidance.

#### Other Notes and References:

• The "Real" Discount Rate used to calculate the Present Value cost is 0.4% for a timeframe of 5-years per the Office of Management and Budget (OMB), Circular A-94, Appendix C, Revised December 2014, "Discount Rates for Cost Effectiveness, Lease Purchase, and Related Analysis"

The Real Discount Rates are a forecast of real interest rates from which the inflation premium has been removed and based on the economic assumptions from the December 2014 Budget Baseline. These real rates are to be used for

• USEPA, 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*. OSWER Directive 9355.3-01. EPA/540/G-89/004. October.

• USEPA, 2000. *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*. With the U.S. Army Corps of Engineers. OSWER 9355.0-75. EPA 540-R-00-002. July.

This is not an offer for construction and/or project execution.

These AACE Classification Class 4 cost estimates are assumed to represent the actual total installed cost within the range of -30 percent to +50 percent (% based on AACE) of the cost indicated. It would appear prudent that internal budget allowances account for the highest cost indicated by this range as well as other site specific allowances. The cost estimate has been prepared for guidance in project evaluation and implementation from the information available at the time of the estimate. The final costs of the project will depend on actual labor and material costs, competitive market conditions, implementation schedule, and other variable factors. As a result, the final project costs will vary from the estimates presented herein. Because of this, project feasibility and funding needs must be carefully reviewed prior to making specific financial decisions to help ensure proper project evaluation and adequate funding.

• Buildings are separated by size, including (a) <1000 sq. ft., (b) 1000-5000 sq. ft., and (c) >5000 sq. ft.

(a) The following assumptions apply for buildings <1000 sq. ft.: Sealing is 0.5 days, testing is 0.75 days, installation is 1 day, electrician is 3 hours, 1 indoor air sample, and 1 subslab soil gas sample

(b) The following assumptions apply for buildings 1000-5000 sq. ft.: Sealing is 1 day, testing is 1.5 days, installation is 2.25 days, electrician is 5 hours, 2 indoor air samples, and 2 subslab soil gas samples

(c) The following assumptions apply for buildings >5000 sq. ft.: Sealing is 3 days, testing is 2 days, installation is 4 days, electrician is 3 hours, 4 indoor air samples, and 4 subslab soil gas samples

Outdoor air sampling will occur at 4 locations bordering the properties